

Centerpulse Orthopedics Ltd.

C5075

Claims

- 5 1. A bone fixing system comprising at least one nail (11), in particular
a femoral medullary nail, and at least one screw (15), in particular a
condyle screw, which can be guided through a transverse bore (13)
formed in the nail (11) and defining the orientation and the position
of the screw (15) with respect to the longitudinal axis of the nail
10 (11),
characterized by at least one clamping member (61, 63) which can
be introduced into a longitudinal bore (35) of the nail (11) and is
axially adjustable in the longitudinal bore (35) relative to the nail
(11), with the screw guided through the transverse bore (13) of the
15 nail (11) being able to be clamped between the clamping member
(61, 63) and the inner wall of the nail (11) bounding the transverse
bore (13) by the displacement of the clamping member (61, 63).
- 20 2. A bone fixing system in accordance with claim 1, characterized in
that the longitudinal bore (35) of the nail (11) is provided with an
inner thread section (36) in which the clamping member (61) can be
screwed.
- 25 3. A bone fixing system in accordance with claim 1, characterized in
that the clamping member (61) is made in one piece and is in par-
ticular provided in the form of a grub screw.

4. A bone fixing system in accordance with claim 1, characterized in that at least one sleeve-like or bushing-like insert (65) is inserted into the longitudinal bore (35) of the nail (11) and has at least one passage (64) aligned with the transverse bore (13) of the nail (11) and with which the clamping member (61) cooperates.
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5. A bone fixing system in accordance with claim 4, characterized in that the inner side of the insert (65) is provided with an inner thread section (66) in which the clamping member (61) can be screwed.
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6. A bone fixing system in accordance with claim 4, characterized in that the insert (65) is made of a material, in particular a cobalt chromium alloy, which has a higher toughness and/or hardness than the material, in particular titanium or a titanium alloy, of the nail (11).
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7. A bone fixing system in accordance with claim 4, characterized in that the insert (65) is rotationally fixedly connected to the nail (11).
- 20 8. A bone fixing system in accordance with claim 4, characterized in that the insert (65) is pressed or screwed into the longitudinal bore (35) of the nail (11).
- 25 9. A bone fixing system in accordance with claim 1, characterized in that a plurality of transverse bores (13) are formed in the nail (11) and a clamping member (61) is provided for each screw (15) which can be guided through one of the transverse bores (13).

10. A bone fixing system in accordance with claim 1, characterized in that a set of different axial spacings is provided between the nails (11) having transverse bores (13) and the axial length of the clamping members (61) is respectively smaller than the smallest axial spacing between two sequential transverse bores (13) occurring in the set.
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11. A bone fixing system in accordance with claim 1, characterized in that a section of the clamping member (63) disposed on the side of the screw (15) remote from the displacement device (67) can be moved against the screw (15) by means of a displacement device (67) by pulling on the clamping member (63) .
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12. A bone fixing system in accordance with claim 11, characterized in that the clamping member (63) is freely movable at least in the axial direction in the longitudinal bore (35) of the nail (11) and has at least one passage (69) for the screw (15) which can be aligned with the transverse bore (13) of the nail (11), with the clamping member (63) preferably being made in sleeve shape.
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13. A bone fixing system in accordance with claim 11, characterized in that the displacement device (67) includes a drawing screw which cooperates with a thread section (71) of the clamping member (63) and is supported at the nail (11) for the drawing of the clamping member (63) in the axial direction.
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14. A bone fixing system in accordance with claim 11, characterized in that the clamping member (63) has a plurality of passages (69)
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which are spaced apart from one another in the axial direction and can each be aligned with a transverse bore (13) of the nail (11).

15. A bone fixing system in accordance with claim 11, characterized in
5 that the clamping member (63) can be deformed in the axial direction by means of the displacement device (67).
16. A bone fixing system in accordance with claim 15, characterized in
10 that the clamping member (63) can be deformed such that a plurality of screws (15) spaced apart from one another in the axial direction of the nail (11) can each be clamped between the clamping member (63) and the inner wall of the nail (11) bounding the respective transverse bore (13) by the displacement.
- 15 17. A bone fixing system in accordance with claim 11, characterized in that at least one securing member (73), in particular a securing screw, is provided which can be moved from the outside through the side wall of the nail (11) into its longitudinal bore (35) and by which
20 the clamping member (63) can be fixed in its starting position relative to the nail (11) prior to the actuation of the displacement device (67).